

COVID-19 AND TOURISM

ASSESSING THE ECONOMIC CONSEQUENCES

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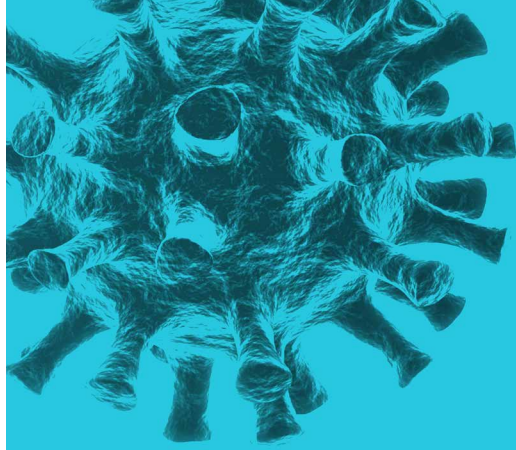
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Abstract

The COVID-19 pandemic has caused significant disruptions in the global economy.

By the end of the first quarter of 2020, the COVID-19 pandemic had brought international travel to an abrupt halt and significantly impacted the tourism industry. For many developed and developing countries, the tourism sector is a major source of employment, government revenue and foreign exchange earnings. Without this vital lifeline, many countries may experience a dramatic contraction in GDP and a rise in unemployment. Using a computable general equilibrium model (GTAP), we assess the implications of the COVID-19 crisis on the tourism sector. Depending on the duration of the global lockdown, the paper estimates the direct and indirect costs of the shutdown for 65 individual countries and regions and 65 sectors, covering the global economy. In some countries, unemployment could rise by more than 20 percentage points and some sectors could nearly be wiped out if the duration of the tourism standstill is up to one year. Further the paper puts forward policy recommendations for governments to avert the worst effects and facilitate recovery.



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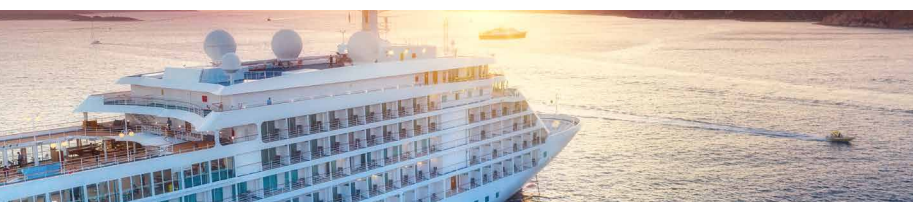
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Introduction

By June 2020, COVID-19 infected over 10 million people and caused the deaths of over 500,000 worldwide (WHO¹). Globally, the spread shows no sign of abating. Although daily cases in Europe and Western Pacific are declining, they are increasing in the Americas, South East Asia and Africa. In response, most countries have closed their borders to visitors and tourists. The UN World Tourism Organization² reported during the second quarter of 2020 for the first time ever that 100 per cent of global destinations introduced travel restrictions. As a result, international tourism has been almost totally suspended, and domestic tourism curtailed by lockdown conditions imposed in many countries. Although some destinations have started slowly to open up, many are afraid of international travel or cannot afford it due to the economic crisis.

Tourism is a critical sector of the international economy. In 2019, the tourism sector accounted for 29 per cent of the world's services exports and about 300 million jobs globally.³ It is an important source of income and employment for developed and developing countries. The global contraction in tourism arrivals could have devastating economic consequences as some developing countries are highly dependent on tourism. In some countries, such as several small island developing states (SIDS), tourism accounts for more than half of the GDP.

This paper focuses on the potential economic effects of the halt of tourism, in the short and medium term, in the major tourist destinations as well as in those countries highly dependent on tourism (as a share of GDP). In this context, special attention is placed on developing countries where the prosperity of some communities can be seriously compromised by the fall of tourism revenues. The paper considers three different scenarios to quantify the impact of the reduction in global tourism on country incomes, trade and employment using a general equilibrium model which captures the backward and forward linkages between sectors. The paper concludes with policy implications.

¹ <https://covid19.who.int/> accessed 26 June 2020.

² <https://www.unwto.org/news/covid-19-travel-restrictions>

³ <https://www.e-unwto.org/doi/pdf/10.18111/9789284421152>



How the COVID-19 crisis hits tourism

Tourism is one of the fastest growing economic sectors and is an important driver of economic growth and development. In 2018 there were 1,407 million international tourist arrivals, a six per cent increase on the previous year.⁴ Tourism receipts amounted to \$1,480 billion, an increase by 4.4. per cent, higher than global GDP growth as in the previous 8 years. Passenger transport is worth another \$250 billion. Tourism exports account for seven per cent of global trade in goods and services, or \$1.7 trillion. In 2019, the most popular destinations were France, Spain, the USA and China.

Tourism is a major source of employment globally. The labour market has some distinguishing features. The industry is labour-intensive in nature. A high proportion of the jobs are undertaken by women, 54 per cent, significantly higher than in most other sectors, and young employees, meaning the industry is seen as inclusive. However, women are more likely to be entrepreneurs in tourism than in other sectors and most women hold low skilled jobs in the tourism sector, making them vulnerable to shocks. There is also a significant amount of indirect employment in construction and infrastructure development, plus supplying food and drink and souvenirs to tourists. Furthermore, many employees have direct contact with tourists in travel agencies, airlines, ships, hotels, restaurants, shopping centres and various tourist attractions.

COVID-19 is a health and economic crisis on a global scale. While little is known at this time about many aspects of the disease (such as asymptomatic transmission, preventative measures, possible treatments, the likelihood of a vaccine and long term effects), it is generally agreed that the virus is easily transmissible and that the fatality rate is low when compared to previous pandemics such as SARS, Ebola and the bubonic plague. Fatalities are heavily skewed towards older people and those with existing ailments.

To slow the spread of the virus, many countries have encouraged or mandated the use of sanitary practices such as hand washing, social (spatial) distancing and isolation. Government have introduced a slew of policy measures such as targeted testing and tracing, lockdown measures, upgrading public health facilities and closure of borders. The measures have impacted many industries and the delivery of personal services, resulting in demand and supply side shocks.

International tourism is among the economic sectors most impacted by the COVID-19 pandemic. The United Nations World Tourism Organization (UN WTO) estimates a loss of 850 million to 1.1 billion international tourist arrivals, \$910 million to \$1.1 trillion in export revenues and 100-120 million jobs, depending on whether the borders are opened in July, September or December. Most destinations were entirely closed in April and May 2020, opening only in some regions slowly for the northern summer. UN WTO projections reflect considerable uncertainty about the duration of the pandemic, in addition to the government response to support economic activity.

⁴ Data in this section is from UN WTO (2020).

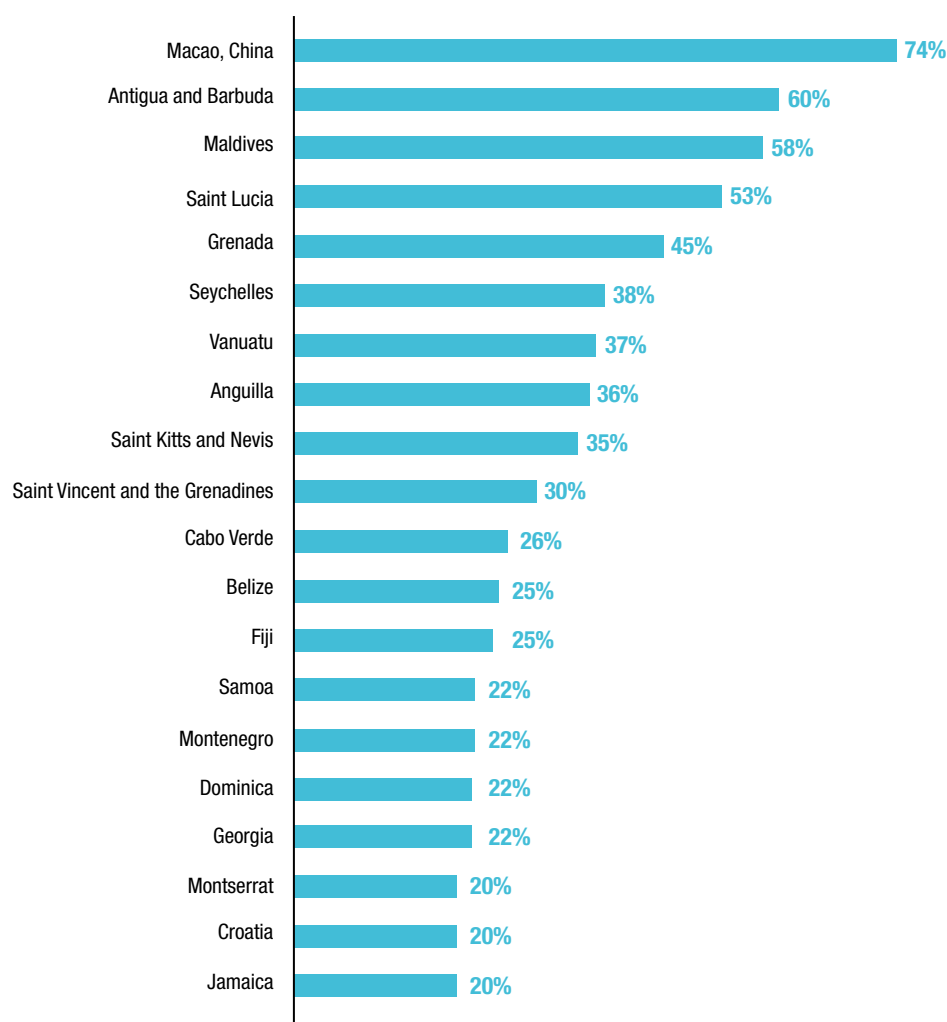
⁵ Zarrilli and Aydiner-Avsar (2020) provide an overview of female employment in the tourism sector in SIDS countries and how they might be affected by the COVID-19 crisis.

For Least Developed Countries (LDCs), tourism is also an important sector contributing 9.5 per cent to their GDP on average.⁶ For 42 out of 47 Least Developed Countries, tourism is considered a key sector of the economy.⁷ Some larger high or middle income countries, such as Croatia, Greece and Thailand, also depend significantly on tourism with a share of inbound tourism between 8 and 18 per cent.

Countries most dependent on tourism include many small economies and notably, SIDS (Coke Hamilton, 2020). This is illustrated in Figure 1 which shows the inbound tourism as a share of GDP in the 20 most dependent countries. Common characteristics among these countries include small domestic markets, a low degree of export diversification and remoteness. As a result, these economies are highly vulnerable to external shocks and thus, are among the most impacted by COVID-19. It is anticipated that the economic blow to SIDS will result in record amounts of revenue losses without the alternative sources of foreign exchange revenues necessary to service external debt and pay for imports.⁸

Figure 1.

Inbound tourism expenditure as share of GDP, selected economies, 2018



Source: UN WTO (2020).

Note: * SIDS

⁶ COVID-19 hitting tourism hard: What does this mean for the world's poorest countries? May 13, 2020. Brendan Vickers, Salamat Ali, Deanna Ramsay.

⁷ Enhanced Integrated Framework (EIF), trade4devnews.enhancedif.org.

⁸ Impact of COVID-19 on Tourism in Small Island Developing States (2020), Pamela Coke-Hamilton

In addition to inbound tourist expenditure, tourism also has indirect effects on the economy. Tourism employs labour, capital (ports and airports), and a host of intermediate inputs such as financial services, education, food and alcohol, and domestic travel.

Due to the remoteness of many SIDS, travel to these destinations is expensive for consumers in important export markets such as North America, Europe and Asia. Consumers are limited to air and sea travel to reach these destinations. Given the current public health and safety concerns, these transportation options are not feasible at this time for many international tourists. The dramatic reduction in global demand for international travel has caused significant setbacks in key industries, most evidently the cruise and airline industries.

Amid travel restrictions, the cruise industry has suspended sailing until September 2020. The industry has seen record losses in share prices amongst the top three cruise lines - Carnival, Norwegian Cruise Line and Royal Caribbean Cruises.⁹ For example, Carnival's share price dropped 70 per cent in the first quarter of 2020. However, booking for 2021 are 40 per cent up on 2019, according to data from industry sources, but this may reflect postponed booking from 2020.¹⁰

As of April 2020, the airline industry (IATA) has recorded an 80 per cent drop in flights when compared to the same period in 2019. In the IATA financial outlook for the global air transport industry, it showed that airlines are expected to lose \$84.3 billion in 2020.¹¹ Frankfurt's passenger numbers, home of Europe's biggest airline Lufthansa, dropped by 97 per cent in April. The situation is even worse in some other airports, such as Lima with a drop of 99 per cent. Chili's LATAM airline, Latin America's biggest carrier, filed for Chapter 11 bankruptcy protection, and Lufthansa survived only with a €9 billion bailout.

IATA reports that passenger numbers may not recover to 2019 levels until 2023-24. Domestic flights will recover much sooner, reflecting the closed international borders and uncertainty about the safety of long-distance air travel. Some 40 per cent of respondents to an IATA survey said they would wait at least six months after restrictions were lifted before resuming travel (IATA 2020). Tourist travel is discretionary spending and a global recession will dampen consumers enthusiasm for international travel. In particular because ticket prices may increase if social distance measures have to be observed in planes and airports. The bankruptcy of several airlines may also increase the cost of air travel.

Taken altogether, the availability and accessibility of transportation will have a profound impact on the financial recovery for many tourism dependent economies. Many predictions do not anticipate a return to normal levels in the short term for the tourism sector.

⁹ <https://www.forbes.com/sites/sergeiklebnikov/2020/06/19/cruise-lines-facing-record-losses-extend-suspension-of-sailing-until-september/#303766e75b76>

¹⁰ <https://www.cruisecompetite.com/>

¹¹ <https://www.iata.org/en/pressroom/pr/2020-06-09-01/>



Tourism in the CGE model GTAP

Computable general equilibrium (CGE) models capture intersectoral relationships as specified in input-output tables, which show the inputs used in production in each sector. CGE models also link countries through bilateral trade in goods and services. They are designed to show the economy wide effects of changes in tariffs, transport costs, productivity changes and other exogenous shocks. The CGE model used here is GTAP, a multi-country and multi-sectoral model fully documented in Hertel and Tsigas (1997).

The current version of the GTAP database (V10) include sectors “Accommodation, food and services” and “Recreation and other services” which covers most tourist expenditure.¹² Travellers’ expenditure is allocated across sectors, as described in the GTAP documentation:

“Travelers’ expenditures” includes spending abroad by tourists, people working overseas for short periods, and the like. The balance of payments statistics treats these expenditures as a single services commodity. But to fit in with the I-O [Input-Output] accounting framework in the GTAP Data Base, we need to resolve them into the standard GTAP commodities; so if a traveler abroad buys a T-shirt or a train ticket, we treat the expenditure as trade in apparel or in “other transport”, not in “travelers’ expenditures”.¹³

Most of the travellers’ expenditure is in two sectors “Accommodation, food and services” and “Recreation and other services”. However, a serious limitation is that in GTAP, national income is defined as revenue produced within the borders of the national territory, as noted by Berritella et al. (2004). Therefore, the additional expenditure generated by tourism activities is not accounted for as exports, but as additional domestic consumption. Foreign income spent inside the country amounts to an income transfer. Changes in the flow of tourists can be modelled as changes in final consumption plus changes in the international income transfers. A change in tourist demand is modelled as a shock to output of sectors “Accommodation, food and services” (afs) and “Recreation and other services”, (ros) according to the UN WTO estimates of inbound tourist expenditure and the reduction in expenditure dependent on the duration of the shutdown.

In this application, the database is aggregated to 65 sectors and 65 regions. This includes several EU member countries which are important tourist destinations and a source of tourists. Most SIDS countries are unfortunately not single entities in GTAP but part of a larger region. Appendix table A1 shows the regions. All 65 sectors are included in GTAP.

It is further assumed that low skilled workers in all countries/sectors can become unemployed if demand for labour falls, though unemployed can try to find employment in other sectors within countries. High skilled workers can also move to other sectors, but adjustment occurs in wages. These assumptions reflect evidence in labour markets where low skilled workers tend to have a higher risk of becoming unemployed in case of an economic shock than higher skilled workers.

The GTAP data is also updated, starting from a base year of 2014 (GTAP version 10A data base) to the more recent year of 2018, using the World Bank macroeconomic dataset, employing the tool named GTAPAdjust (Horridge, 2011), which entails scaling of the entire data based on certain targets, which could be both macro and micro level.

¹² The Version 10 database is documented in Aguiar et al. (2019).

¹³ See McDougall and Hagemeyer (2006).



Scenarios

To illustrate the potential impact of the decline in the tourism sectors, three scenarios are simulated and described in table 1. The scenarios, Moderate (optimistic), Intermediate and Dramatic (pessimistic), vary in the length of international tourism absence. The scenario Intermediate is closest to the assessment of the UN WTO (2020b) that international tourist numbers could fall by 60 to 80 per cent in 2020. The Intermediate scenario assumes a reduction by 66 per cent.

Table 1.
Alternative scenarios

No	Label	Description
1	Moderate 	 1/3 of annual inbound tourism expenditure is removed in each country.  This is equivalent to 4 months standstill of international tourism or a  80% for 5 months.
2	Intermediate 	 2/3 of inbound tourism expenditure are removed in each country.  This is equivalent to 8 months standstill of international tourism or a  80% for 10 months.
3	Dramatic 	 All annual inbound tourism expenditure is removed in each country.  This is equivalent to almost 12 months standstill of international tourism.

In each scenario, annual tourism expenditure is reduced as a productivity shock. The shocks are proportionate to inbound tourist expenditure (shown earlier in figure 1 for selected countries). Industry output is reduced by a third, two thirds and almost all of this amount, in the three scenarios, respectively. The national effects on output and consumption take into account inputs in the tourism sector such as food, drink and transport.

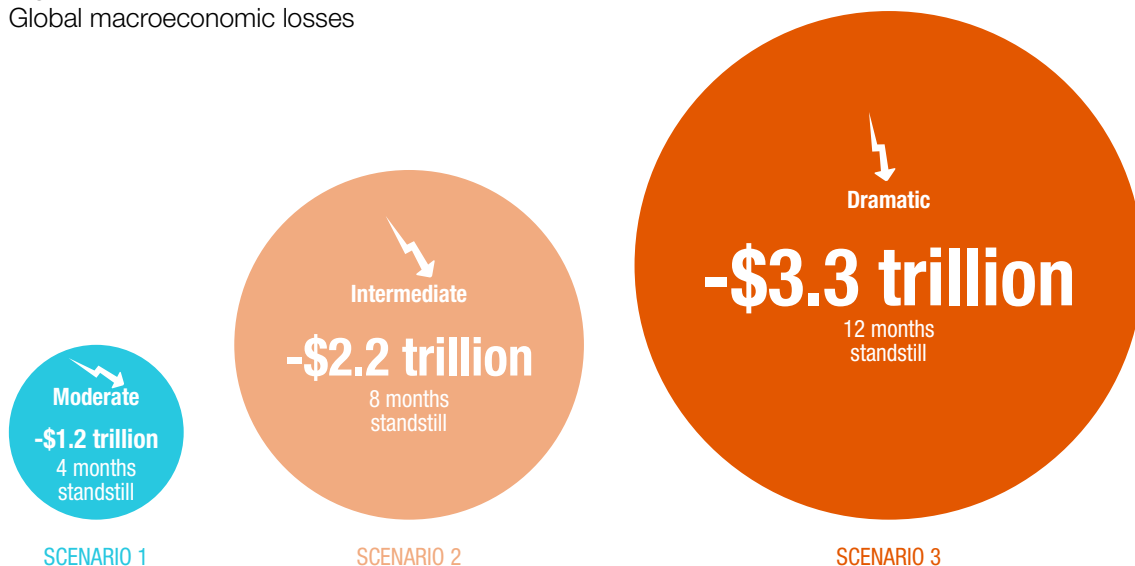


Results

The model captures the direct and indirect effects of the decline in international tourism receipts on the global economy. Taking into account the subsectors that support the tourism industry, the incurred loss to GDP is much larger than the direct effects of the loss of tourism. As demonstrated in the model, global GDP losses under the most optimistic tourism reduction scenario amount to an estimated \$1.17 trillion, about 1.5 per cent of global GDP (figure 2). Extending the four months lockdown to eight and 12 months increases the losses in a fairly linear fashion, to \$2.22 (2.8 % of world's GDP) and \$3.3 trillion (4.2% of world's GDP) respectively. The estimated GDP losses of \$3.3 trillion are more than double the size of the international tourism industry alone in the worst-case scenario.

Figure 2.

Global macroeconomic losses



Scenarios

Source: GTAP simulations.

The GDP losses by country are varied, as illustrated in figure 3. The losses are largely determined by the size of the tourism industry relative to GDP. This is also partly dependent upon the inter-sectoral linkages of supply in the tourism industry and the ability of a country to shift from tourism to other industries. It is important to note that the GTAP database is not disaggregated to capture all economies individually and as a result, many smaller economies including many SIDS are captured as a part of regional groupings.

According to the model, Jamaica stands out with a loss of 11 per cent in GDP in the moderate scenario. This finding is unsurprising as the tourism industry accounts for 20 per cent of GDP in Jamaica. A similar scenario may be estimated for other SIDS where the tourism sector is a significant contributor to GDP. Thailand is also among the most heavily affected countries with a loss in GDP of 9 per cent in the moderate scenario. This is followed by popular tourist destinations Croatia, Portugal and Dominican Republic which record losses of 9 per cent, 8 per cent and 6 per cent respectively. Many countries face losses over 3 per cent of GDP.

In absolute terms, the world's largest trading economies, USA and China face the largest declines in GDP. The USA incurs the highest losses with a drop of US\$187 billion in GDP in the moderate scenario. Following the US, China faces a loss of US\$104 billion in GDP. Major tourist destinations such as Thailand, France and Germany stand to lose approximately US\$47 billion each in GDP due to the contraction in tourism.

Figure 3.

Changes in GDP: 15 most affected countries, moderate scenario

Country	% Change (GDP)	Country	Value Change – GDP (US\$Millions)
Jamaica	-11	United States of America	-187,038
Thailand	-9	China (inc. Hong Kong SAR)	-104,690
Croatia	-8	Thailand	-47,728
Portugal	-6	France	-47,289
Dominican Rep.	-5	Germany	-46,260
Kenya	-5	Spain	-44,119
Morocco	-5	United Kingdom	-37,096
Greece	-4	Italy	-34,324
Mauritius	-3	Japan	-30,706
Senegal	-3	India	-28,120
Ireland	-3	Republic of Korea	-22,092
Egypt	-3	Indonesia	-20,713
South Africa	-3	Canada	-18,480
Malaysia	-3	Mexico	-17,376
Spain	-3	Portugal	-13,922

Source: GTAP simulations. See Appendix table A3 for the detailed numbers.

Based on the results, the impact on GDP is significant when direct and indirect effects of a reduction of international tourism are assessed. A decreased demand for exports and/or reduced national demand and supply due to prolonged lockdown measures would also have a compounding negative effect on the economic position for many countries.

Sectoral impacts

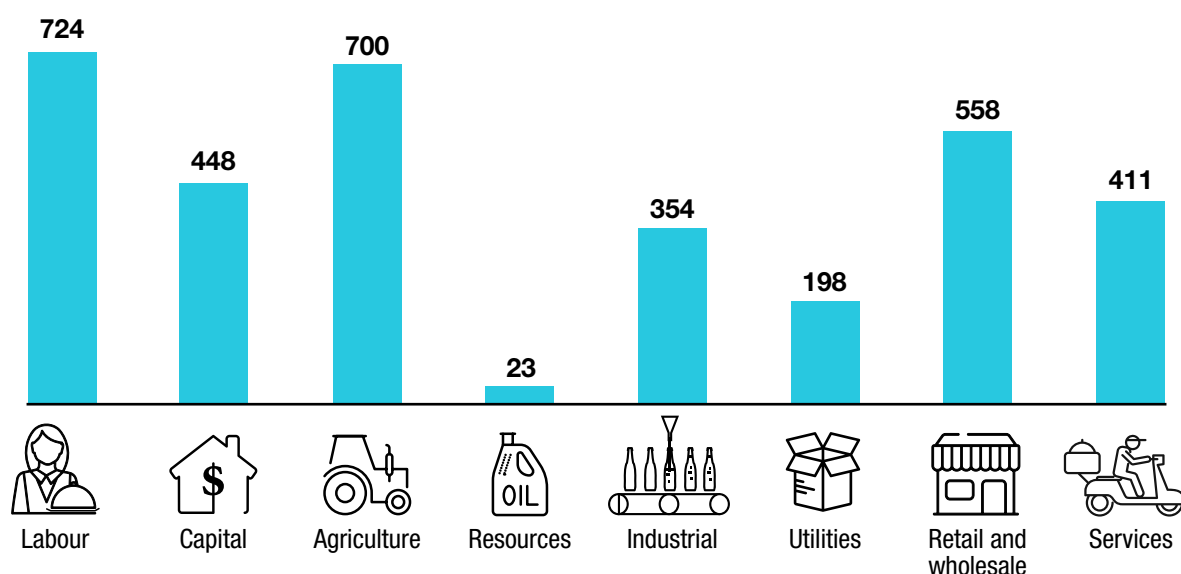
Turning to the sectoral impacts of the COVID-19 pandemic, the computable general equilibrium (CGE) model GTAP covers the global economy and links all sectors through input-output tables and production functions. The advantage of CGE models is that it allows analysis on intersectoral linkages and takes limitations of the availability of primary factors, capital, land, labour and natural resources, into account. Tourism employs labour, capital, and a host of intermediate inputs. The major endowments are capital and labour. Capital comprises hotels, ports and airports, rental cars, and specific tourist facilities. The capital used in tourism is to a large extent immobile, i.e. it can hardly be used in other sectors. Labour, however, may be more mobile, depending on the specificity of the required skills.

The main intermediates that are used in tourism are services, including health, financial, construction, trade, air transport and communication. Intermediate goods include food and alcohol, motor vehicles and plant-based fibres. The intermediate goods are used in other sectors as well.

By way of example, the Croatian “Accommodation, food and services” sector uses labour, capital and intermediate inputs as shown in figure 1. Croatia is a European country highly dependent on tourists, by European standards at least. Total inputs amount to \$3,414 million, with labour accounting for 20 per cent of the costs and capital about 13 per cent. Intermediate inputs account for \$2,224 million, of which \$650 million are imported in this example. Of course, much of the sector caters for domestic consumers as well as tourist.

Figure 4.

Inputs used in Croatian Accommodation, food and services sector (\$m)



Source: GTAP V10 database.

Intersectoral linkages worsen the impact of a decline in tourism. A fall in tourist arrivals has a negative impact on the suppliers to hotels, food and recreational activities. Table 2 shows the sectors that are strongly affected by the contraction in tourism. Focusing on the 15 most affected countries, in terms of share of GDP (Figure 3), the table depicts the contraction of output in each sector as a result of a fall in international tourism under the moderate scenario. The table highlights the level of interconnectedness between the tourism industry and other economic sectors. The more connected the sector is, the stronger the impact of a negative shock in the tourism industry. Table A5 in the Appendix depicts these linkages for a wider number of sectors and economies under the Moderate scenario. The majority of sectors in almost all countries are affected negatively with most losses ranging between -1 per cent and -20 per cent.

Results are qualitatively similar but with higher magnitudes in the Intermediate and Dramatic scenarios. However, it is important to note that some sectors such as construction, metals, minerals, machineries, electrical equipment, electronic products, rubber and plastic products, may experience gains in some countries, as labour and capital are reallocated away from tourism for use in other productive sectors and away from tourism. The negatively affected sectors lose due to their complementarities with the tourism sector, as well as the sheer magnitude of the shock. This may be especially applicable to countries that are most dependent on tourism.

The indirect losses due to intersectoral linkages in the tourism industry produce a multiplier effect throughout the economy. Findings show that the losses in GDP are approximately 2-3 times higher. As a result, a \$1 million loss in international tourist revenue can lead to a fall in national income of \$2-3 million. It is these intersectoral linkages and corresponding losses which lead to the large indirect losses when the tourism sector contracts.

Table 2.

Sectoral Output Impact for most affected countries under the Moderate scenario (in % changes)

Country	Recreational and other service	Accommodation, Food and services	Dwellings	Trade	Construction	Financial Services, Insurance	Air transport	Communications	Electricity, Water	Food, selected sectors	Motor vehicles and parts	Beverages and tobacco products
												
 Jamaica	-28	-31	-10	-6	-11	-3	0	1	-4	2,6	-1	2
 Thailand	-55	-55	-9	-3	-7	-4,5	-7	-4	-2,5	0,6	-2	-1
 Croatia	-55	-55	-5	-3	-5	-3	-8	-1	-1,5	-0,6	5	-2
 Portugal	-55	-21	-5	-2	-3	-2	-17	-2	-0,5	0,8	2	0
 Dominican Rep.	-32	-26	-5	-3	-2	-1,5	-4	-3	-1,5	-0,8	-1	1
 Kenya	-19	-55	-4	0	-1	-3	1	0	-4,5	-8,6	-5	-4
 Morocco	-55	-55	-5	-2	-2	-2	-2	-2	0	-0,8	0	-1
 Greece	-33	-19	-3	-2	-1	-1	4	-1	-1	0,2	0	0
 Mauritius	-55	-55	-3	-27	-4	-1,5	-4	-4	-2	-0,4	2	-1
 Senegal	-12	-13	-4	0	-4	-3,5	3	-1	-0,5	1	1	-1
 Ireland	-29	-20	-3	-1	-3	0	0	-2	-1,5	-1,4	-4	0
 Egypt	-18	-23	-3	-2	0	-2,5	1	-2	-0,5	-0,6	-2	0
 South Africa	-6	-22	-3	-1	-4	-1,5	2	-1	-1	-0,8	-2	-1
 Malaysia	-55	-19	-3	0	-2	-1,5	0	-1	-1	-0,6	-2	0
 Spain	-14	-11	-1	-1	-1	-1	1	-1	-1	-0,8	-1	0

Source: GTAP V10 database.

Employment impacts

The pandemic is characterised by an almost unprecedented increase in unemployment, disguised somewhat by government support measures in some countries. For this reason, the labour market is modelled assuming fixed wages for unskilled workers with all the adjustment occurring in the quantity of labour employed. For skilled workers, it is assumed that the adjustment occurs in wage rates, the standard closure.

Further, there is a net loss to the economy due to unemployed labour and capital. Due to the dramatic contraction in the tourism industry, many workers may become unemployed or displaced. Displaced workers can move to other sectors within countries, but it may be difficult to find employment in other sectors or industries during the economic downturn. Employment can increase in sectors not closely linked to tourism, absorbing some of the displaced workers from the tourism industry.

In many developing and least-developed countries tourism provides an opportunity to enter the job market, though often with precarious working conditions. Tourism often serves as a first entry point into work especially for women, youth, migrant workers and rural population (ILO, 2013). A majority of tourism workers are under 35 years (ILO, 2017). A report by the UNWTO (2019) states that "Women's work in tourism is dominated by informality, through high staff turnover, long working hours, subcontracting, flexible working conditions, the prevalence of casual workers and seasonal variations in employment". Low-skilled, casual and temporary workers are likely to be the first to lose their jobs and may find it difficult in seeking employment in other sectors of the economy. GTAP data are not disaggregated by gender or age but it can be assumed from this discussion that unskilled women, as well as youth, are disproportionately affected by lay-offs in the tourism sector resulting from the COVID-19 crisis.¹⁴

Negative employment and wage effects are highest in countries reliant on tourism. Due to the possible mobility of labour, wage effects can spread across the economies. The changes in real

¹⁴ Zarrilli and Aydin-Avsar (2020) and Durant (2020) DSG note on gender.

wage rates for skilled staff is shown in figure 6. The steepest drops are in Thailand (-12 per cent), Jamaica (-11 per cent), and Croatia (-9 per cent), in the optimistic case, and two to three times this in the worst case.

Figure 6.

Change in Skilled Wages (in % changes): 15 most affected countries

Country	Moderate	Intermediate ▲	Dramatic
Jamaica	-11	-22	-34
Thailand	-12	-17	-23
Croatia	-9	-13	-17
Dominican Republic	-6	-12	-18
Kenya	-8	-11	-14
Portugal	-6	-11	-16
Greece	-5	-10	-14
Ireland	-5	-10	-15
Malaysia	-5	-9	-13
Senegal	-4	-8	-12
Morocco	-5	-7	-9
Spain	-4	-7	-11
United Arab Emirates	-4	-7	-10
Egypt	-3	-6	-8
South Africa	-3	-6	-10

Source: UNCTAD

For unskilled workers, the resulting level of unemployment is seen in figure 7. Once again, the worst affected countries are Thailand, Jamaica and Croatia. In the most extreme case employment falls 44 per cent in Jamaica if the entire tourism sector is stopped for 12 months. The case in Jamaica is extreme due to a high share of unskilled workers in its tourism industry, and the contribution of the industry to GDP. The high unemployment contributes to the significant losses in GDP. It can be expected that other SIDS reliant on tourism may face similar dramatic challenges in the labour market.

Figure 7.

Change in Unskilled Employment (in % changes): 15 most affected countries

Country	Moderate	Intermediate ▲	Dramatic
Jamaica	-15	-29	-44
Thailand	-17	-24	-31
Croatia	-12	-17	-22
Dominican Republic	-8	-16	-24
Portugal	-9	-15	-21
Ireland	-7	-14	-20
Greece	-6	-13	-19
Malaysia	-5	-10	-14
Morocco	-6	-8	-10
South Africa	-4	-8	-12
Spain	-4	-8	-11
Egypt	-4	-7	-11
Mauritius	-5	-7	-9
Philippines	-4	-7	-10
Senegal	-3	-7	-10

Source: UNCTAD



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Implications and conclusions

Using the general equilibrium model, the potential effects of the tourism shock can be quantified. The analysis demonstrates the strong backward and forward linkages of tourism and the other sectors of the economy. A decline in tourist arrivals affects employment and income along the supply chain. Therefore, the GDP and employment effects are much greater than the inbound tourist expenditure data would suggest. Many countries depend heavily on tourism and will experience dramatic effects in the labour market and national income. Loss of employment in the unskilled sector is above 10 per cent in many countries even in the most optimistic (moderate) scenario and can rise above 40 per cent in the most pessimistic (dramatic) scenario. Women are likely to be disproportionately affected due to a high share of female employment in the tourism sector. However, almost all sectors of the economies reliant on tourism are negatively affected due to the intersectoral linkages.

Some labour and capital may be employed in other sectors though most capital is not easily transferrable, and it will be difficult for many workers to find employment in other sectors in declining economies. What GTAP does not capture is the adjustment cost of moving out of one industry and back again when it recovers. Tourism is likely to recover more slowly than other industries, perhaps as long as 19 months, based on previous pandemics, according to the WTTC (2020). Private individuals, businesses and governments are faced with the decision to move to another sector, which involves retraining and some capital investment, or waiting it out until the tourism industry recovers.

What can countries do to mitigate the devastating effects of lack of international tourism during and after the COVID-19 pandemic?

In the short term, protecting people and maintaining a healthy tourism industry are important. Appropriate social protection can often prevent the worst effects of any type of shock, including the COVID-19 pandemic. Casual and self-employed workers are common in tourism related sectors and should be helped where possible. Governments should protect workers. Where some enterprises are unlikely to recover, wage subsidies should be designed to help workers move to new industries.

Governments can further assist tourism enterprises that may otherwise go bankrupt, such as hotels and airlines. One approach for financial relief is low interest loans or grants. Although support is needed urgently, this requires a thorough analysis of the costs and benefits of support to specific sectors. The data have shown, the economic effects are not only directly in the tourism sector but spread across many sectors.

Most governments have limited means to support or underwrite a major industry. Some programmes such as the Catastrophe Containment and Relief Trust by the International Monetary Fund (IMF) can offer short term debt reliefs to some of its members. The key issue is whether the industry will bounce back once restrictions are removed. This is an unprecedented shock and requires urgent action to prevent

wiping out entire sectors that are likely to recover in the hopefully not so distant future. The international community should support access to funding for the most heavily affected countries.

A key issue for tourists is the need for post-pandemic quarantine on arrival. The need for arrivals to self-isolate for two weeks would be a major barrier to travel. Several countries have lifted this requirement already. This needs a careful and coordinated approach between source and destination countries. A common set of rules related to departure and arrival procedures and sanitation requirements for air travel would be highly beneficial.

In the medium and longer term, governments should support economic diversification where possible. A high dependence on one sector increases vulnerability. For some countries diversification away from tourism may be difficult. Avenues for economic diversification may include increased regional integration, education and training programmes in targeted economic sectors to boost resilience and mitigate the cost of shocks.

A major finding from the analysis is that the GDP effects are much greater than the loss of tourist expenditure because of the indirect effects through the supply chain. Is the modelling under or overstating the effects? In the short run, the effects are probably understated because it is assumed that capital and labour can be employed in sectors other than tourism. This is unlikely to be the case because tourism is not the only sector negatively affected. Therefore, there are limited opportunities for re-employment of displaced workers and capital.

In the long run, the WTTC anticipates that the international tourism sector will likely return to pre-pandemic levels within a 19-month period. Depending on the duration of the pandemic and the measures to contain it, the model presents the effects in three time periods – from a 33 per cent to 100 per cent reduction in annual tourism spending. As the world slowly reopens its economies for tourism, it remains to be seen which scenario will be the most applicable.

The damage incurred in the tourism sector goes beyond cancelled flights and hotel bookings. There is a strong case to be made for governments to intervene and cooperate at an international level to protect the lives and livelihoods around the world.

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Table A1.
Regional aggregation

No.	Label	Description	No.	Label	Description
1	ausnzl	Australia/New Zealand	34	rus	Russian Federation
2	xoc	Rest of Oceania	35	GCC	GCC
3	chnhkg	China/HK	36	isr	Israel
4	jpn	Japan	37	xws	Jordan, Turkey, Rest of Western Asia
5	kor	Korea	38	egy	Egypt
6	RoAs	Rest of Asia	39	mar	Morocco
7	CLMV	Cambodia/Lao PDR/Myanmar/VN	40	xnf	Rest of North Africa
8	idn	Indonesia	41	nga	Nigeria
9	mys	Malaysia	42	sen	Senegal
10	phl	Philippines	43	xwf	Rest of Western Africa
11	tha	Thailand	44	xac	Central/South Central Africa
12	ind	India	45	ken	Kenya
13	RoSA	Rest of South Asia	46	mus	Mauritius
14	can	Canada	47	xec	Rest of Eastern Africa
15	usa	United States of America	48	zaf	South Africa
16	mex	Mexico	49	xsc	Rest of South African Customs
17	arg	Argentina	50	xtw	Rest of the World
18	bra	Brazil	51	Croatia	Croatia
19	xsm	Rest of South America	52	Colombia	Colombia
20	xca	Central America	53	Czech	Czech
21	dom	Dominican Republic	54	IceLeich	Iceland & Liechtenstein
22	jam	Jamaica	55	NMaced	North Macedonia
23	xcb	Caribbean	56	Belgium	Belgium
24	RoNEU	Austria, Denmark, Finland, Luxembourg, Netherlands, Sweden	57	Ireland	Ireland
25	SEU	Cyprus, Greece, Malta,	58	Iran	Iran
26	EEU	East EU	59	UAE	United Arab Emirates
27	fra	France	60	Swiss	Switzerland
28	deu	Germany	61	Ecuador	Ecuador
29	ita	Italy	62	Portugal	Portugal
30	esp	Spain	63	Greece	Greece
31	gbr	United Kingdom	64	Pakistan	Pakistan
32	xef	EFTA	65	Tanzania	Tanzania
33	ECE	East and Central Europe			

Table A2.
Sectoral aggregation

Agriculture and resources		Services	
pdr	Paddy rice	ely	Electricity
wht	Wheat	gdt	Gas manufacture, distribution
gro	Cereal grains nec	wtr	Water
v_f	Vegetables, fruit, nuts	cns	Construction
osd	Oil seeds	trd	Trade
c_b	Sugar cane, sugar beet	afs	Accommodation, Food and services
ptb	Plant-based fibers	otp	Transport nec
ocr	Crops nec	wtp	Water transport
ctl	Bovine cattle, sheep and goats	atp	Air transport
oap	Animal products nec	whs	Warehousing and support activities
rmk	Raw milk	cmn	Communication
wol	Wool, silk-worm cocoons	ofi	Financial services nec
frs	Forestry	ins	Insurance
fsh	Fishing	rsa	Real estate activities
coa	Coal	obs	Business services nec
oil	Oil	ros	Recreational and other service
gas	Gas	osg	Public Administration and defence
oxt	Minerals nec	edu	Education
cmt	Bovine meat products	hht	Human health and social work
omt	Meat products nec	dwe	Dwellings
vol	Vegetable oils and fats		
mil	Dairy products		
pcr	Processed rice		
sgr	Sugar		
ofd	Food products nec		
b_t	Beverages and tobacco products		
Industrial			
tex	Textiles	i_s	Ferrous metals
wap	Wearing apparel	nfm	Metals nec
lea	Leather products	fmp	Metal products
lum	Wood products	ele	Computer, electronic and optic
ppp	Paper products, publishing	eeq	Electrical equipment
p_c	Petroleum, coal products	ome	Machinery and equipment nec
chm	Chemical products	mvh	Motor vehicles and parts
bph	Basic pharmaceutical products	otn	Transport equipment nec
rpp	Rubber and plastic products	omf	Manufactures nec
nmm	Mineral products nec		

Table A3.

Detailed GDP results in all three scenarios

Country Name	Percent Change -GDP			Value Change – GDP (\$m)		
	Moderate	Intermediate	Dramatic	Moderate	Intermediate	Dramatic
Argentina	-1	-2	-4	-6670	-12837	-19004
Australia/NewZealand	-2	-4	-6	-37147	-72757	-108368
Belgium	-2	-3	-4	-8078	-15549	-23020
Brazil	0	-1	-1	-6437	-12525	-18612
Canada	-1	-2	-3	-18480	-35661	-52842
China inc. Hong Kong SAR	-1	-1	-2	-104690	-202554	-300418
Cambodia/Lao People's Democratic Republic / Myanmar/Viet Nam	-3	-6	-9	-11513	-22591	-33668
Colombia	-2	-3	-4	-5043	-9960	-14876
Croatia	-8	-12	-16	-4774	-7015	-9256
Czechia	-2	-4	-6	-4881	-9528	-14175
Germany	-1	-2	-3	-46260	-89719	-133179
Dominican Republic	-5	-11	-16	-4369	-8654	-12939
East&CentralEurope	-2	-3	-5	-11266	-22180	-33095
Ecuador	-1	-3	-4	-1426	-2803	-4180
EastEU	-2	-4	-7	-26770	-52300	-77829
Egypt	-3	-6	-9	-7744	-15326	-22908
Spain	-3	-6	-9	-44119	-86620	-129122
France	-2	-3	-5	-47289	-92291	-137294
United Kingdom	-1	-2	-4	-37096	-71754	-106412
GCC	-2	-3	-4	-26877	-38786	-50694
Greece	-4	-9	-13	-10169	-20202	-30236
Iceland and Liechtenstein	-6	-11	-15	-1409	-2422	-3436
Indonesia	-2	-4	-6	-20713	-40332	-59951
India	-1	-2	-2	-28120	-48407	-68694
Iran (Islamic Republic of)	-1	-1	-2	-3516	-6857	-10198
Ireland	-3	-6	-8	-7231	-14132	-21034
Israel	-2	-3	-5	-6532	-12853	-19173
Italy	-2	-3	-5	-34324	-66926	-99529
Jamaica	-11	-21	-32	-1682	-3322	-4963
Japan	-1	-1	-2	-30706	-60306	-89904
Kenya	-5	-8	-10	-4620	-6673	-8727
Republic of Korea	-1	-2	-4	-22092	-42909	-63725
Morocco	-5	-7	-10	-6079	-8725	-11371
Mexico	-1	-3	-4	-17376	-34156	-50936
Mauritius	-3	-5	-6	-471	-692	-913
Malaysia	-3	-6	-9	-12376	-22501	-32626
Nigeria	0	-1	-1	-1517	-2990	-4463
North Macedonia	-3	-6	-8	-1991	-3895	-5798
Pakistan	0	-1	-1	-1207	-2327	-3447
Philippines	-2	-5	-7	-7727	-15185	-22642

Country Name	Percent Change -GDP			Value Change – GDP (\$m)		
	Moderate	Intermediate	Dramatic	Moderate	Intermediate	Dramatic
Portugal	-6	-10	-15	-13922	-23644	-33366
Rest of Asia	-4	-8	-12	-40221	-78639	-117058
RoNorthEU	-2	-4	-6	-52596	-102327	-152058
RoSouthAsia	-4	-8	-12	-12382	-24619	-36855
Russian Federation	-1	-2	-2	-13776	-26764	-39752
Senegal	-3	-5	-8	-638	-1262	-1886
RoSouthEU	-7	-13	-20	-2260	-4474	-6687
Switzerland	-2	-3	-5	-11757	-22936	-34115
United Republic of Tanzania	-2	-4	-6	-1272	-2345	-3419
Thailand	-9	-14	-18	-47728	-69456	-91184
United Arab Emirates	-2	-5	-7	-10283	-20399	-30516
United States	-1	-2	-3	-187038	-362628	-538220
CentralSouthCentralAfrica	-1	-1	-2	-1763	-3351	-4939
CentralAmerica	-4	-8	-12	-8617	-16989	-25361
Other Caribbean	-3	-6	-9	-7460	-14663	-21866
RoEastAfrica	-3	-7	-10	-8794	-17445	-26096
EFTA	-1	-2	-3	-5159	-10000	-14842
RoNorthAfrica	-4	-7	-10	-1489	-2784	-4078
RoOceania	-3	-5	-8	-1401	-2726	-4052
RestSACU	-2	-5	-7	-885	-1723	-2561
RoSouthAmer	-1	-2	-3	-11301	-21990	-32679
ROW	-7	-11	-14	-2607	-3774	-4941
RoWestAfrica	-1	-2	-3	-2077	-4034	-5991
RoWestAsia	-3	-6	-8	-33536	-66191	-98846
South Africa	-3	-5	-8	-10262	-19929	-29597

Table A4.

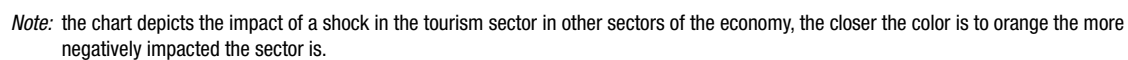
Employment Effects of Unskilled Labour and Wage Effects of Skilled Wages

Country Name	Skilled Wages			Unskilled Employment		
	Moderate	Intermediate	Dramatic	Moderate	Intermediate	Dramatic
Argentina	-1	-2	-4	-2	-3	-5
Australia/New Zealand	-3	-6	-9	-4	-7	-11
Belgium	-2	-4	-5	-2	-4	-6
Brazil	0	-1	-1	0	0	-1
Cambodia/Lao People's Democratic Republic / Myanmar/Viet Nam	-3	-7	-10	-3	-6	-9
Canada	-2	-3	-4	-2	-4	-5
Other Caribbean	-3	-6	-10	-4	-9	-13
Central America	-5	-9	-14	-5	-11	-16
Central South Central Africa	-1	-3	-4	-1	-2	-3
China inc. Hong Kong SAR	-1	-2	-3	-1	-2	-3
Colombia	-2	-4	-6	-3	-5	-8
Croatia	-9	-13	-17	-12	-17	-22
Czechia	-3	-5	-8	-3	-6	-9
Dominican Republic	-6	-12	-18	-8	-16	-24
East & Central Europe	-2	-4	-6	-2	-4	-6
East EU	-3	-5	-8	-3	-6	-9
Ecuador	-2	-4	-6	-2	-4	-5
EFTA	-2	-3	-4	-2	-4	-6
Egypt	-3	-6	-8	-4	-7	-11
France	-2	-4	-6	-2	-4	-7
GCC	-5	-7	-10	-5	-7	-9
Germany	-2	-3	-5	-2	-4	-6
Greece	-5	-10	-14	-6	-13	-19
Iceland and Liechtenstein	-8	-13	-18	-11	-18	-25
India	-1	-2	-2	-1	-2	-3
Indonesia	-2	-4	-7	-2	-5	-7
Iran (Islamic Republic of)	-1	-2	-3	-1	-2	-3
Ireland	-5	-10	-15	-7	-14	-20
Israel	-2	-4	-7	-2	-5	-7
Italy	-2	-4	-6	-2	-3	-5
Jamaica	-11	-22	-34	-15	-29	-44
Japan	-1	-2	-3	-1	-2	-3
Kenya	-8	-11	-14	-1	-1	-2
Republic of Korea	-2	-4	-6	-2	-4	-6
Malaysia	-5	-9	-13	-5	-10	-14
Mauritius	-3	-5	-7	-5	-7	-9
Mexico	-2	-4	-5	-2	-4	-6
Morocco	-5	-7	-9	-6	-8	-10
Nigeria	-1	-1	-2	-1	-2	-3
North Macedonia	-3	-6	-9	-3	-7	-10
Pakistan	0	0	-1	0	0	0

Country Name	Skilled Wages			Unskilled Employment		
	Moderate	Intermediate	Dramatic	Moderate	Intermediate	Dramatic
Philippines	-3	-5	-8	-4	-7	-10
Portugal	-6	-11	-16	-9	-15	-21
Rest of Asia	-6	-11	-17	-7	-14	-20
RestSACU	-3	-6	-10	-3	-6	-9
RoEastAfrica	-4	-9	-13	-3	-7	-10
RoNorthAfrica	-6	-12	-18	-8	-15	-22
RoNorthEU	-3	-5	-8	-4	-7	-10
RoOceania	-3	-5	-8	-3	-6	-9
RoSouthAmer	-1	-3	-4	-1	-3	-4
RoSouthAsia	-5	-10	-16	-1	-1	-2
RoSouthEU	-6	-11	-17	-7	-13	-20
ROW	-11	-16	-20	-14	-20	-26
RoWestAfrica	-1	-3	-4	-1	-2	-3
RoWestAsia	-3	-6	-10	-3	-7	-10
Russian Federation	-1	-2	-4	-2	-3	-4
Senegal	-4	-8	-12	-3	-7	-10
South Africa	-3	-6	-10	-4	-8	-12
Spain	-4	-7	-11	-4	-8	-11
Switzerland	-2	-4	-6	-3	-5	-8
United Republic of Tanzania	-3	-5	-8	-3	-5	-7
Thailand	-12	-17	-23	-17	-24	-31
United Arab Emirates	-4	-7	-10	-3	-5	-8
United Kingdom	-2	-3	-4	-2	-4	-6
United States	-1	-2	-3	-1	-3	-4

Source: GTAP simulations.

Impact on sectoral output by country under the Moderate scenario (in % changes)





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